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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/902,035	07/10/2001	Timothy David Forrester	42252-1009	7784

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EXAMINER
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TRINH, TAN H

ART UNIT	PAPER NUMBER
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2684

DATE MAILED: 04/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/902,035

Applicant(s)

FORRESTER, TIMOTHY DAVID

Examiner

TAN TRINH

Art Unit

2684

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 26-27 is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Allowable Subject Matter***

1. Claims 26 and 27 are allowed.

### ***Reasons for allowance***

2. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 26 and 27, the closest reference of Meredith and the prior art of record fail to teach, a method for wireless communications, comprising the steps of: (a) generating a list of base stations within range of a wireless communications device for a first antenna and a second antenna of the wireless communications device; (b) monitoring a reception characteristic of the first antenna that is coupled to a receiver module of the wireless communications device; (c) if the monitored reception characteristic becomes poor, then testing reception characteristics between the first antenna and the base stations on the list and between the second antenna and the base stations on the list; and (d) if the tested reception characteristic of a particular antenna and a particular base station is better than the monitored reception characteristic, then coupling the receiver module to the particular antenna and coupling wirelessly the wireless communications device to the particular base station, as cited in claim 26.

However, the prior art of record fail to teach, a method for wireless communications, comprising the steps of: (a) generating a list of base stations within range of a wireless communications device for a first antenna and a second antenna of the wireless communications device; (b) monitoring a transmission characteristic of the first antenna that is coupled to a transmitter module of the wireless communications device; (c) if the monitored transmission characteristic becomes poor, then testing transmission characteristics between the first antenna

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and at least one of the base stations on the list and between the second antenna and at least one of the base stations on the list; and (d) if the tested reception characteristic of a particular antenna and a particular base station is better than the monitored transmission characteristic, then coupling the transmitter module to the particular antenna and coupling wirelessly the wireless communications device to the particular base station, as cited in claim 27.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-10 and 13-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Meredith (U.S. Patent No. 6,052,605).

Regarding claim 1, Meredith teaches a wireless communications device (see fig. 1), comprising: a first antenna (see fig. 1, antenna 202, #1); a second antenna (see fig. 1, antenna 202, #12); a switching module coupled to the first antenna and to the second antenna (see fig. 1, the matrix switches 200 or 900); a receiver module coupled to the first antenna and to the second antenna via the switching module antenna (see fig. 1, receiver modular interconnect to the matrix switch 200); and a transmitter module coupled to the first antenna and to the second antenna via the switching module (see fig. 1, transmit modular interconnect to the matrix switch 900); wherein the switching module is adapted to couple the receiver module to one of the first antenna or the second antenna as a function of a reception characteristic of the first antenna and the

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second antenna (see fig. 1, receiver modular interconnect to the matrix switch 200), and wherein the switching module is adapted to couple the transmitter module to one of the first antenna or the second antenna as a function of a transmission characteristic of the first antenna and the second antenna (see fig. 1, transmit modular interconnect to the matrix switch 900) and (see col. 4, line 3- col. 5line 49).

Regarding claim 2, Meredith teaches wherein the switching module includes a first switch and a second switch (see fig. 1, scanning and targeting system module 100), wherein the receiving module is coupled to the first antenna and to the second antenna via the first switch (see fig. 1, receiver modular interconnect to the matrix switch 200), and wherein the transmitter module is coupled to the first antenna and to the second antenna via the second switch (see fig. 1, transmit modular interconnect to the matrix switch 900).

Regarding claim 3, Meredith teaches further comprising: a controller coupled to the transmitter module, the receiving module and switching module (see fig. 2, micro controller 1, coupled transmitter module and the receiving module 260, switching module 240).

Regarding claim 4, Meredith teaches wherein the transmission characteristic is determined for a particular transmission frequency employed by the transmitter module (see col. 7, lines 27-40).

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Regarding claim 5, Meredith teaches wherein the transmission characteristic includes effects of a multipath environment (see col. 7, lines 13-40).

Regarding claim 6, Meredith teaches wherein the transmission characteristic includes at least one of signal strength, signal clarity and bit error rate (see col. 8, lines 28-41).

Regarding claim 7, Meredith teaches wherein the reception characteristic is determined for a particular reception frequency employed by the receiver module (see col. 7, line 48-col. 8, line 8).

Regarding claim 8, Meredith teaches wherein the reception characteristic includes effects of a multipath environment (see col. 7, lines 13-40).

Regarding claim 9, Meredith teaches wherein the reception characteristic includes at least one of signal strength, signal clarity and bit error rate (see col. 8, lines 28-41).

Regarding claim 10, Meredith teaches wherein the controller includes a mobile station modem (MSM) (see fig. 4, modem 100).

Regarding claim 13, Meredith teaches a system for providing a diversity antenna in a wireless communications device (see fig. 1), comprising: a first antenna (see fig. 1, antenna 202, #1); a second antenna (see fig. 1, antenna 202, #12); first means for selecting one of the first

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antenna or the second antenna for use in transmitting information as a function of transmission characteristics of the first antenna and the second antenna switch (see fig. 1, transmit modular interconnect to the matrix switch 900, col. 4, line 3- col. 5line 49), and second means for selecting one of the first antenna or the second antenna for use in receiving information as a function of receiving characteristics of the first antenna and the second antenna (see fig. 1, receiver modular interconnect to the matrix switch 200, col. 4, line 3- col. 5line 49).

Regarding claim 14, Meredith teaches for coupling a transmitter module to one of the first antenna or the second antenna as selected by the first selecting means (see fig. 1, transmit modular interconnect to the matrix switch 900, col. 4, line 3- col. 5line 49); and means for coupling a receiver module to one of the first antenna or the second antenna as selected by the second selecting means (see fig. 1, receiver modular interconnect to the matrix switch 200, col. 4, line 3- col. 5line 49).

Regarding claim 15, Meredith teaches a method for receiving and transmitting information in a particular multipath environment (see fig. 1, and col. 7, lines 13-40), comprising the steps of: (a) selecting one of a first antenna or a second antenna for use in transmitting information as a function of transmission characteristics of the first antenna and the second antenna in the particular multipath environment (see fig. 1, transmit modular interconnect to the matrix switch 900, col. 4, line 3- col. 5line 49); (b) selecting one of the first antenna or the second antenna for use in receiving information as a function of receiving characteristics of the first antenna and the second antenna in the particular multipath environment (see fig. 1, receiver

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modular interconnect to the matrix switch 200, col. 4, line 3- col. 5line 49); (c) coupling the information to be transmitted to one of the first antenna or to the second as selected in step (a) and (d) coupling the information to be received to one of the first antenna or to the second antenna as selected in step (b) (see fig. 3, combiners 905 and col. 7, lines 17-40).

Regarding claims 16 and 21, Meredith teaches a method for wireless communications (see fig. 1), comprising the steps of: (a) monitoring a reception characteristic of a first antenna of a wireless communications device that is coupled to a receiver module of the wireless communications device (see col. 2, lines 18-27); (b) evaluating the reception characteristic of a second antenna of the wireless communications device that is coupled to the receiver module (see fig. 1, receiver modular interconnect to the matrix switch 200, col. 4, line 3- col. 5line 49); and (c) coupling the receiver module to the second antenna instead of the first antenna (see fig. 1 and col. 2, lines 29-55).

Regarding claims 17 and 22, Meredith teaches wherein the step of evaluating includes the step of evaluating only if the reception characteristic of the first antenna reaches a particular threshold value (see col. 2, lines 33-40, col. 8, lines 31-40).

Regarding claims 18 and 23, Meredith teaches wherein the step of evaluating includes the step of testing the second antenna by coupling the receiver module to the second antenna instead of the first antenna (see col. 8, lines 10-41).



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Regarding claims 19 and 24, Meredith teaches wherein the step of coupling includes the step of coupling only if the reception characteristic of the second antenna is better than the reception characteristic of the first antenna (see col. 8, lines 7-41, col. 9, lines 27-42 and col. 10, lines 52-66).

Regarding claim 20, Meredith teaches the steps of: (d) evaluating a transmission characteristic of the first antenna and the second antenna; and (e) coupling a transmitter module of the wireless communications device to one of the first antenna and the second antenna that has a transmission characteristic that more closely matches the reception characteristic of the second antenna (see col. 8, lines 7-41, and col. 9, lines 27-42, col. 10, lines 52-66).

Regarding claim 25, Meredith teaches wherein the step of monitoring includes the step of receiving feedback information from a wireless communications network for use in determining the transmission characteristic (see col. 10, lines 23-37).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meredith (U.S. Patent No. 6,052,605) in view of Crawford (U.S. Patent No. 6,456,245).

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Regarding claim 11, Meredith teaches the first antenna and second antenna. But Meredith fails to teach the first antenna and second antenna is not disposed in a same direction as the second antenna.

However, Crawford teaches the first antenna and second antenna is not disposed in a same direction as the second antenna (see fig. 1, antenna At1 and Atn, and col. 1, lines 26-33).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Meredith system and by the providing of the teaching of Crawford on the different polarization direction of two antennas so that user can receiving a signal in a multi-path environment.

Regarding claim 12, Meredith fails to teach teaches the first antenna is disposed approximately orthogonally with respect to the second antenna.

However, Crawford teaches the first antenna is disposed approximately orthogonally with respect to the second antenna (see col. 1, lines 61-64).

Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Meredith system and by the providing of the teaching of Crawford on the different polarization orthogonally direction of two antennas so that user can receiving a signal in a multi-path environment.

### *Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Kobayashi (U.S. Patent No. 6,633,759) discloses communication system, and mobile communication device, portable information processing device, and data communication method used in the system.

Diepstraten (U.S. Patent No. 5,491,723) discloses wireless communication system having antenna diversity.

8. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
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**or faxed to:**

**(703) 872-9314, (for Technology Center 2600 only)**


*Hand-delivered responses should be brought to Crystal Park II,  
2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).*

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tan Trinh whose telephone number is (703) 305-5622. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung, can be reached at (703) 308-7745.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **Technology Center 2600 Customer Service Office** whose telephone number is **(703) 306-0377**.

Tan H. Trinh  
Art Unit 2684  
April 1, 2004

  
**NICK CORSARO**  
**PATENT EXAMINER**